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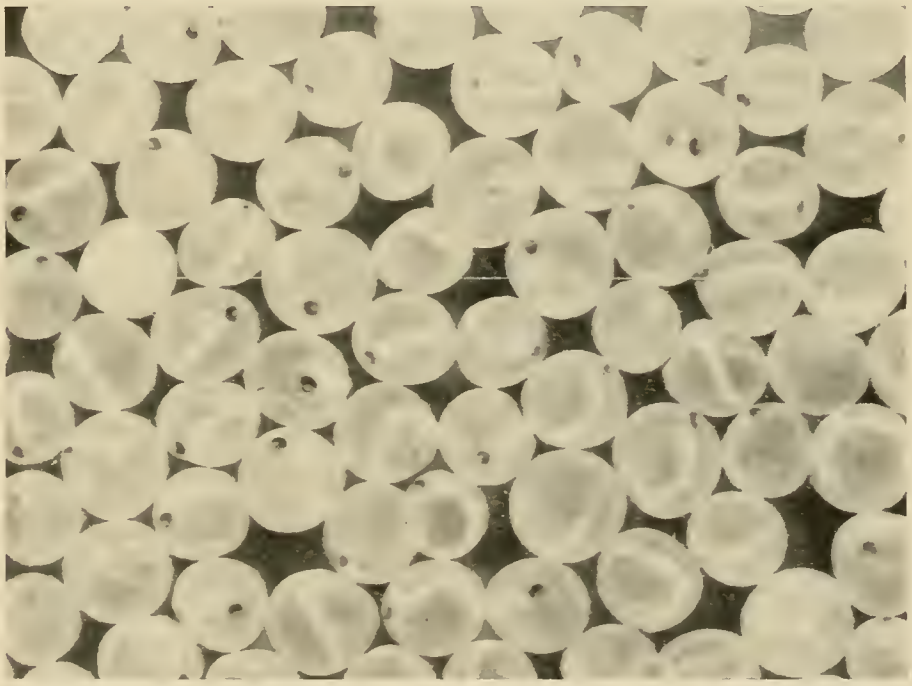
Fish Stocking and the Wild Fish Concept

By ART WHITNEY

Why Not Stock More Trout Streams?

Twenty years ago most of Montana's trout streams were frequently stocked with large numbers of trout fry, fish one to two inches long. Today, fewer streams are stocked, but much bigger fish are used. Thus, a good number of streams that used to be planted haven't received hatchery fish for ten years or more. Some fishermen feel that the Fish and Game Department is somehow failing to do its duty because a favorite stream that hasn't been planted for several years must surely be without fish.

The fact that some streams aren't stocked doesn't mean that they have been written off as worthless or that they don't provide fishing. Many of our more popular trout streams haven't been stocked for years but continue to produce annual crops of fish by natural means only.



Young fish take form in hatchery spawn. The objective—get as many as possible into fishermens' creels.

Fish stocking was once considered as a means of replacing what fishermen took from the streams. Like money drawn from a bank, it was considered, the fish caught had to be replaced or they would all be gone. We know now that this isn't so. Trout in a stream are not at all like dollars in a vault. They reproduce, grow, and die. They reproduce in such large numbers that a lot of little fish have to die each year because a stream has food and cover for only a certain number, or pounds of fish. Consequently, the little fish stocked in streams ten to twenty years ago didn't make more big fish available to fishermen as it was hoped they would. If any of the planted fish survived to be caught, they did so at the expense of some naturally spawned fish. Early "maintenance" planting did nothing towards improving fishing in subsequent years.

The potential for fish to reproduce is really overwhelming. Consider a 100 foot section of good stream might support 20 adult fish. If this section of stream held 10 pairs of spawning fish, and each female deposited 1,500 eggs, then a total of 15,000 eggs would be in the gravel. It is not unreasonable to expect that 90 percent of these eggs will hatch. There would be 13,500 trout fry in an area which could support only 20 adult fish. This means that 13,480 would die before they reached adulthood. Most of the mortality occurs the first few months after

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Can men like the locust create their own generations of "Frankensteins" by becoming too crowded?

On Crowding

There has been much speculation, of late, concerning not only the human population explosion, but also the growing tendency for humans to clump together, or "Beehive." Is it an essential part of man's evolution to live in ever-larger crowds with ever greater dependence upon each other, or can we look to other members of the animal world for insight into crowding?

Following is a portion of an article which appeared in the "Wildlife Review"—a publication of the Department of Recreation and Conservation, Victoria, B.C.

"Study of the effects from the crowding of a species or a population of a species is not new. Yet perhaps the most dramatic and significant early scientific study and one that conforms with the modern disciplines of the scientific, experimental method—was that of Jacobus Faure in the late '20's. It dealt with the great locust (grasshopper) plagues of Africa, and Faure's research is considered to be a classic of its kind. Here is a brief account of it:

Ancient explanations of the locust plagues of Africa were that Allah occasionally opened a big hole in the Sahara desert and allowed great hordes of locusts (grasshoppers) to visit pestilence on the land as punishment for the sins of the people. And there was some logic in this explanation, because these large, winged grasshoppers were seldom seen except during these visitations and differed greatly from the smaller, highly colored grasshoppers that were commonly present on the land.

But Jacobus Faure suspected otherwise and decided to perform an experiement. He collected numbers of the local grasshoppers and placed them in cages with plenty of food but in various densities. And soon he began to observe some differences in the behavior of the grasshoppers. In the more densely inhabited cages he noticed that the grasshoppers quickly became very active with a strange sort of excitement. They kept hopping about and soon began to change their appearance. They grew larger and became less brightly colored. And soon, lo and behold, they grew larger wings and became the Frankensteins of the locust plagues!

Mass emigrations of animal populations are, of course, nothing new, and those of the Arctic lemming mouse are perhaps the best known on account of their dramatic nature and frequent occurrence. But those of our own gray squirrel can match any account. There have been occasions in the past, for example, when gray squirrels have made mass emigrations during which they have attempted to swim large rivers such as the Niagara, Hudson, and Ohio. Many drowned in these efforts and the shores of the rivers they sought to cross became lined with their bodies.

Many species of birds also dramatically demonstrate their need for space. The familiar spectacle of the male robin fiercely fighting its own image in a basement window or in the hubcap of an automobile is just one example. The abundant clapper rail, or mud hen, of the Jersey salt marches goes much further: When conditions become too over crowded, these cunning gamebirds have been observed to invade neighboring nests and destroy the eggs of the big clutch with their power-packed bills."

Ageless Water

The **Herald Tribune,** Newark, New Jersey, July 23, 1961, had a most interesting quote: AGELESS WATER.

Water is as old as the earth—every bit of it. The next drink of it you take could be in part, the very same that washed the hands of Pilate, trickled down the face of Ruth as she stood in tears, rained on Noah, or irrigated the forbidden fruit that was plucked by Lady Eve. It's the stuff of rainbows, the sap of plants, the blood of animals, the wet of dry martinis, the humidity that's worse than the heat, the cloud mass that spoils the astronaut's view. It makes up more than 90 percent of the human body, and the world is running out of it.

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FISHING STOCKING

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hatching or among fish the same age class as used to be commonly planted.

If planting little trout in an already occupied stream does no good, what kind of planting will improve fishing? How about large fish? Over 15 years ago the department began rearing and planting trout of a size that fishermen would consider "keepers." It was found that on a short term basis, this type of stocking put more fish in the creels. It was also found to be very expensive and results short lived.

Since planting of catchable-sized trout improves fishing only for the season and because it is expensive, planting of these larger trout has been based on these limitations. If the plan is to add days of fishing recreation additional to what a stream will support naturally, and this is what is being done, then the catchables should be planted where they are most apt to be caught. Such areas are essentially larger streams, easily accessible, and near heavier population centers.

On a statewide average it costs about 20 cents to raise and plant each eight to nine inch rainbow trout. In even some of our better areas, fishermen catch only about 40 percent of the fish that are planted. Simple arithmetic shows each of these fish creeled represents about a 50 cent investment. Only one limit of 10 planted catchable fish would represent $5.00—more than the resident pays for his fishing license.

If there were nothing else that could be done to maintain or improve fishing, probably nearly all stream management funds would go into stocking catchable sized trout. It is popular, the results are quickly realized, and even the guy who wants to catch only wild fish gets some benefit from it by having fewer fishermen in the areas where he wants to fish.

Unfortunately, the future of fishing does not fall to such a simple solution. The future of sports stream fishing must depend upon the miles of trout streams, the quality of streams (streams with lots of holes, lots of bends and good bank vegetation), the amount of water available to the streams, and the quality of that water. Competition for water with agriculture, industry, and domestic sources; pollution of water by the same sources; and destruction of stream habitat through building of dams and other construction are the real spectres that haunt the shores of trout streams. Stream planting as it is done today is effective and popular, and plans are to continue at about the present level. Stream planting is only a small part of an overall program and it must be considered in its proper perspective to the more important, long range phases of fisheries management.

Fish Stocking Policy

In order to insure a well-balanced fisheries program, the Fish and Game Commission has adopted a "Fish Stocking and Management Policy." This policy limits expenditures for the fish cultural program to no more that one third of the direct and indirect fish conservation expenditure. Certain criteria are also included in the policy to insure that fishermen creel as many of the catchable-size planted fish as possible. Following are some of the standards which a stream or lake must meet before it will be planted with catchable-size trout for immediate harvest.

1. For each six fish planted there must be an increase of one fishermen day on the water stocked.

2. It must be established that a catchable plant will provide more days of recreation fishing than would an equal value of smaller fish.

3. At least 40 percent of the planted fish must be creeled and these must provide 25 percent of the game fish harvested from the water stocked.

4. The body of water when planted must show significant fishing pressure.

5. For a new plant to be made, or an existing plant to be increased, anglers must have a catch of less than one-half game fish per hour as determined by creel census.

The planting of catchable-size fish or fingerlings of any species for population manipulation, rather than immediate harvest, is considered resource management. To insure this type of planting makes a significant addition to Montana's sport fishery and does not merely replace wild stocks, the following criteria must be met:

1. The planted fish, after growing to a desirable size for harvest, must comprise at least 10 percent of the water's catchable-size game fish and must result in a significant increase in the population as determined by the best available method for assessing fish populations.

2. The planted fish must comprise at least 25 percent of the water's game fish harvest.

3. At least twice the weight of fish planted must be returned to the creel.

The feasibility of plants of fry of any species and the feasibility of transplants of fish from one water to another will be judged by the merits of the individual project.

To many persons, catching "wild" trout is an important part of a fishing trip.

The Wild Fish Concept

Each form of recreation can be either commonplace or outstanding, depending on certain things that give it quality. Many persons feel that catching wild fish is an essential part of a "quality" fishing trip. A wild fish is considered as one which is the product of nature rather than of artificial culture. While other fishermen may not feel as strongly on this point, they may still prefer their quarry to be a true product of the wild. In keeping with this concept, provisions have been made in the commission's fish stocking policy to set aside certain streams, or outstanding streams for wild fish only. Such streams will not be planted except to reestablish fish in an area where some disaster has killed off the natural fish residents. Streams in the wild fish category include: all streams or sections of streams in wilderness areas, streams or sections of streams outside wilderness areas that are not accessible by graded road, select sections of state Recreational Waterways, and select sections of Blue Ribbon trout streams.

There are quite a number of other streams in our state which have in essence been wild trout waters because they have provided excellent fishing for many years without planting. The Madison River below Ennis Lake is one example. The Fish and Game Commission will consider declaring some of these streams as wild trout streams at a later date, and after Montanans have had a chance to think over the wild fish concept.

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